

AMENDMENTS TO THE SPECIFICATION

Please insert the following new paragraphs after the description of Figure 1, at page 3, line 17:

“Figure 2 describes the sequence of HEG3E(4)-2 (SEQ ID NO: 11).

Figure 3 describes the sequence of HEGM(1)-3 (SEQ ID NO: 12).

Figure 4 describes the sequence of HEGE2 (SEQ ID NO: 13).”

Please replace the paragraph beginning at page 18, line 6 and ending on page 20, line 19 with the following paragraph:

“5’ and 3’ -end gene specific primers (GSP) were designed based on the sequence obtained from previous 5’- and 3’- RACE products. 5’ GSP1 has the following sequences: 5’- GCTGAGCATTGCGAACTACGCCTTCAAC 3’, (SEQ ID NO: 9) and 3’ GSP2 has the following sequences: 5’- TAACACCGCGTGGATCCAAGCTACG 3’ (SEQ ID NO: 10). Full-length cDNAs from both *Heliothis* embryo and muscle were generated using 5’ GSP1 and 3’ GSP2 in a long distance PCR reaction which used the following cycle condition: 1 cycle of denaturation at 94°C for 1 min, and 25 cycles of denaturation at 94°C for 30sec and annealing and extension at 72°C for 5 min using *pfu* as polymerase. The amplified fragments from both *Heliothis* embryo and muscle were cloned into pCR2.1-TOPO vector (Invitrogen) to generate plasmids HEG3E(4)-2 and HEGM(1)-3. HEG3E(4)-2 has the sequence as set forth in Figure 2 (SEQ ID NO: 11). HEGM(1)-3 has the sequence as set forth in Figure 3 (SEQ ID NO: 12). ~~the following sequences (SEQ ID NO: 11):~~

——1 ctgagcattg cgaactacgc ctccaacatt gtttttttaa acaaacacccg tttttaatt
——61 ttaatagcac teattaaagg tttttttga aggaaagttg tgacagcaac cggagtegtt
——121 tagaatggga ctttgttgag tggaggatg gacateccgc ggccatcatg cgcctetgta

—181 ttggtgtgt tatttgtae ceatetetea gaatgeatga aeggtggga gateaacttt
—241 egagagaagg agaagcagat eetggateag atcetgggee eegggaggta egaegceagg
—301 atcagaceet eegggateaa eggeactgat gggecagegg tagtgagegt caatatattt
—361 gteegaagta tateaaagat egatgaegte acaatggaat acetegtaea attaaegtth
—421 eeggaacaat ggttagatga aeggetcaaa tteaataate ttggaggtg cetcaataae
—481 etgaeactga etgaagecaa eagagtetgg atgeetgate tattettete caegagaag
—541 gaaggteatt teeacaacat cateatgeeg aagetgtaea teegaatett cecceaeegge
—601 aagetgtgt acageateeg aateteetg aegtetegt gecccatgaa cetcaagttg
—661 taceceetgg ataageagae etgetegete aggatggeta gttatggtg gaecacagae
—721 gaettagtgt teetatggaa ggaaggagae eeggtgeagg tgggaaaaa ettacaeetg
—781 ceteggttea egetggagaa gtteeteact gaetaetgea aeagtaagae taatacegg
—841 gaatacagtt geetgaaggt agacetgete tteaaegeg agtteagta etacetgate
—901 cagatetaca tteegtgetg catgetggtg ategtgtcet ggggtteett etggetggae
—961 caggaggetg tgeetgeag ggteteacta ggagtgaega ettaacttae aatggegace
—1021 cagtegteag geataaege gteetacea eeggtgtcet aaegeaage cattgatge
—1081 tggactgggt tatgteteae attegtatte ggagegetae tagagtttge getegteaee
—1141 tatgegtete getetgaat geacegagag aacatgaaga aagegagaeg ggagatggaa
—1201 geageeagea tggatgetge eteagatete ettgatacag atageaaeae caeetttget
—1261 atgaaaceet tggtegeegg eggegtggtg gaatecaaga tgeggcagtg egagatecae
—1321 ataececege egeggaagaa etgetgege etgtggatgt ceaagttee caegegetee
—1381 aagaggatag acetateete caggateace ttecaettg ttttegetet gtttaacetg
—1441 gettaetgaa tgaageagag aaeteetee tttegeaca gaaateetga agagactgaa
—1501 caaegaagtt teetaaceae aateattget atgattatae egagaattta tttataeta
—1561 attgttga ceacaeggtt ttaegtage ttgatecae geggtgta

HEGM(1)-3 has the following sequence (SEQ ID NO: 12):

—1 aggtgeggae gtetgeactt gegaategaa gtgatagaaa atagttegat gaatacggga

—61 gtttgagtgg agtgatttat aatteggagg atggacatee egeggecate atgegeete
—121 gtattggtgt tgtatttgt cacecatete teagaatgca tgaacgggtg gaagateaac
—181 tttegagaga aggagaagea gatectggat cagatectgg gceegggag gtaegaegee
—241 aggateagae ceteegggat caaeggeact ggetatgege caaegttagt ceatgteaac
—301 atgtatetae ggtcateag caaaatagat gattacaaaa tgaatacte egtacaatta
—361 aegttteggg aacaatggt agatgaagg etcaaattea ataattettg aggtegeete
—421 aaatacetga caetgaetga agecaacaga gtetggatge etgatetatt ettetecaae
—481 gagaagggaag gtcattteca caacateate atgeegaag tgaateceg gatetteeee
—541 aaegecaag tgetgtaag cateegaate teetgaage tetegece eatgaacete
—601 aagttgtace ceetggataa geagaeetge tegetagga tgetagta tggttggaee
—661 acagacgaet tagtttct atggaaggaa ggegaacegg tgeaggtgt gaaaaetta
—721 caetgeete ggttaeget ggagaagte eteactgaet actgeaacag taagaetaat
—781 aceggtgaat acagttgeet gaaggtagae etgetettea aaegegagti eagttaetae
—841 etgatecaga tetacatte gtgetgeatg etggtateg tgettggt gteettetg
—901 etggaecagg gagetgtge tgegaggte teactaggag tgaegaetti acttaaatg
—961 gegaecagat egteaggeat caaegegte etaccaecgg tgettaeae gaaagecatt
—1021 gatgtetgga etgggtatg teteacatte gtatteggag egetactaga gtttgeete
—1081 gteaactatg egtetegete tgaatgae egagagaaca tgaagaage gagacgggag
—1141 atggaagcag ccagcatgga tgetgeetea gateteettg atacagatag caacaceae
—1201 tttgetatga aaceettggt gegeggegg gtggtggaat ceaagatgeg geagtgegag
—1261 atcacatea ceegecegeg gaagaactge tgegeetgt ggatgtecaa gteceaeag
—1321 egetecaaga ggatagaegt catetecagg ateacette caettgtgtt egetetgtt
—1381 aaetggett actgttggg gggaagagg ggggggtg etgetaccat gtettgeagg
—1441 agegatgaga etattaatge tatttataag etgatacaga atgaagcaga gaaactete
—1501 etttgegae agaaatectg aagagaetga acaagaagt tteetaacea caateattge
—1561 tatgattata cegagaattt atttataet aattgttg accacaeggt ttaagetag

—1621-cttggateca-eggggttta”

Please replace the paragraph beginning at page 21, line 8 and ending at page 24, line 23 with the following paragraph:

“Clone HEG3(E)-2 insert was cut out from its vector by SacI enzyme, and was labeled with ^{32}P using Boehringer Mannheim’s Random Primed DNA Labeling Kit (Ca # 1004760). Part of the amplified *Heliothis virescens* embryo library was plated out on 10 large 150-mm NZY agar plate at 50,000 pfu/plate. Phage particles were transferred to nitrocellulose membranes. Membranes were denatured in a 1.5 M NaCl and 0.5 M NaOH denaturation solution for 5 minutes, neutralized in a 1.5 M NaCl and 0.5 M Tris-Cl (pH 8.0) neutralization solution for 5 minutes and rinsed in a 0.2 Tris-Cl (pH 7.5) and 2 x SSC buffer for 2 minute. DNA was crosslinked to the membranes using the Stratalinker UV crosslinker (CL-100 Ultraviolet Crosslinker, UVP). Prehybridization was performed in a 50 ml solutions containing: 25 ml of formamide, 12.5 ml of 20 x SSC, 0.5 ml of 10% SDS and 5 ml of Derhardt solution at 42C for 3 –4 hours. Labeled probes were added to the prehybridization solution at 1.84×10^5 dpm/ml ^{32}P and hybridization was continued at 42°C for 24 hours. Membranes were washed twice for 15 minutes in low stringency conditions (2 x SSC/0.1%SDS, room temperature), twice for 15 minutes in high stringency conditions (0.2 x SSC/0.1%SDS, 42C), and once for 15 minutes in higher stringency conditions (0.1 x SSC/0.1%SDS, 42C). Ten positive clones were identified and plaques were purified, and secondary and tertiary screenings were performed using the same primer with positive clones to make sure that each positive plaque was very well separated. The phagemids containing the inserts were excised following the manufacturer’s instruction (Stratagene). Two clones which have the same full-length sequences of glutamate-gated chloride channels, were designated HEGE2. The following DNA sequence (SEQ ID NO: 13) for clone HEGE2 was determined and is set forth in Figure 4.[:]”

1 ACCAGGGGCA CTACGGCTTC AACATTGTTT TTTTAAACAA ACAGCGTTTT TTAATTTTAA
61 TAGCTCTCAT TAAAGGTTTT ATTTGAAGGA AAGTTGTGAC AGCAACCGGA CTGGTTTAGA
121 ATGGGACTTT GTTGAGTCGG AGGATGGACA TCGCGGGCGG ATCATCGCGG CTGGTATTGG
181 TGTTCGTTATT TGTACCCAT CTCTCAGAAAT GCATGAACGG TGGGAAGATC AACTTTGAGG
241 AGAAGGAGAA GCAGATCTCG GATCAGATCC TGGGCCCCGG GAGGTACGAC GCCAGGATCA
301 GACCCCTCGGG GATCAACGGC ACTGATGGGC CAGCGGTACT GAGCGTCAAT ATATTTGTCC
361 GAAGTATATC AAAGATCGAT CACGTCACAA TGGAAATCTC CGTAGACTTA ACGTTTCGGG
421 AACATGGGT AGATGAACGG CTCAAAATCA ATAATCTTGG AGGTCCGCTC AAATACCTGA
481 CACTGACCGA AGCCAAACGA CTCCTGGATG CTGATCTATT CTCTCCAAAC GAGAAGGAAG
541 CTCATTTCCA CAACATGATC ATGCCGAAGG TGTACATCCG GATCTTCCGG AAGGGCAACG
601 TGCTGTACAG CATECGAATC TCCTTGACGG TCTCGTGGCC CATGAACCTC AAGTTGTACC
661 CCTCGGATAA GCAGACCTGC TCGCTCAGGA TGGCTAGTTA TGGTTGGACC ACAGACGACT
721 TAGTGTCTCT ATGGAAGGAA GCGGACCCGG TGCAGGTGGT GAANAACCTA CACCTGCGTC
781 GGTTCACGGT GGAGAACTTC CTCCTGACT ACTGCAACAG TAAGACTAAT ACCGGTGAAT
841 ACAGTTGGCT GAAGGTAGAC TTGCTCTTCA AACCGGAGTT CAGTTACTAC CTCATCCAGA
901 TCTACATTCC GTGCTGCATG CTGGTCATCG TGTCTGGGT CTCCTTCTGG CTGGACCGG
961 GAGCTGTGCG TCGGAGGGTC TCACTAGGAG TGACGACTTT ACTTACAATG GCGAGCCAGT
1021 COTCAGGCAT CAACGCGTCC CTACCACCGG TGTCTACAC GAAGGCCATT GACGTCTGGA
1081 CTGGTGTATG TCTCACATTC GTATTCCGGG CGCTACTAGA GTTCGGGCTC GTCAACTATG
1141 CGTCTGCTCT TGACATGCGC CGAGAGAAAC TGAAGAAAGC GAGACGGGAG ATGGAAGCAG
1201 CAGCATGGA TGCTGCTCA GATCTCTAG ACACAGATAG CAACAGCAGC TTTCGTATGA
1261 AACCTTGGT GCGGGGCGGG GTGGTGGAA CCAAGATGCG GCAGTGGCAG ATCCACATCA
1321 CCGCGCGCGG GAAGAACTGC TCGCGCTGT GCATGTCGAA GTTCCCGCAG CGCTCCAAGA
1381 GGATAGACCT CATCTCCAGG ATCAGCTTCC CACTTGTGTT CGCTCTGTTT AACCTGGCTT
1441 ACTGCTGCAC GTACCTGTTT CCGGACGAGG ACGAGGAGAA GTGATTCTCC GAGTCCCTGG
1501 AGAGGGGGCT GGGGCGCGGC GTGACGCTGG TGGGCGCGGT CGTGTGCCC TACGTGCTGT
1561 TCGTGTGCGG GTACTGCGTG TGCTTCCGCG CGCGCGCGCC CGCGCGCTTC CGCGCGCGCG
1621 CGCGCGCGCC CGCGCGCGCG CCGGACCCCT CCGCGCGCAG CGCGCGCGCA CGCAGACAAG
1681 CACACCGACC TAGCGCGCTC TAGCGAATC ACCCGATTCA TTATCGTGAC ATATTTATAT
1741 ATCTGTATT TTAATCGAGC TCTTCTCGT GGCAGCGTTA TTCCCACTCA GTATTGATG
1801 CGCTTAGCTT TTAATGATAA GCTCAAGTGT CTATTTGTAT ATATATGTGA CCGCGGTGCC
1861 AGTTTAGACC AAGCTTCCGT TTTTAAATG AAGCAGTTCG AGAAAAACGG TAAAAATAGA
1921 CTCATTTTG ATTGGTCATC TAAACAGCAG AACTTTTATT CGGCACCTAT AAAGTCCCTA
1981 ATTATTTGTG TACAAAAATA AATATTTTAC TTTCGGAGAA TTAATAATTT TCGATAATTT
2041 TACCAATGAT ATGACTCCTT GTATGCAATC GTATGTAAAG TAAACCTAGG TTAAGATATA
2101 AGAGGAATCC CAGAGGTTCG CGCATATTAC TTTAGCCTTT AAGGTAAAGT AAATAAGGAC
2161 TAGAATGGCA CTAATGTGTA GTGGAAGTGG GGTATTATTT AGTAGTTTTC ACTCTACAGT
2221 ACGTGAAGTC CACTAGATCT ACTACCAAT AGAGTTGATC AATTTTCATG TCGAATGTT
2281 CACAGATATT GTATAAACCG CTGGAGGTAA ACAGCTATCA ACAATGTAAC ACCAAATAGC
2341 ATCAGATACA AGCAAAACCA TGGAAATTTT GCTAATCGAA AAGTTGTAAC TGTTTATCTA
2401 TGGCAGGTAT AATTGGCCTA GTAATGTATC GTGTAGTATC ATTTAGACAA CATATTAAC
2461 ATTAACCACA TTATGTGAAA GAAGCAATTT ATAAAAAAA CTTATTATAA TATATATTAG
2521 ATAAGTATTA TTAATGGGAT ATTCTCTTGC TGGGCATTTT AATATGAATC TTACCTTTAA
2581 ATAGTTTTGA TCTCATAGA CGTTGCAAT GGATACCCCA AATACCTTTT CCGCATTAAG
2641 ACGTATTATT TTAACAAATG TATTCTTCCC CGTCAATGTT TTAAGACTAC GTATCTACAT
2701 AAAATGATGT ATTGTTCATA CAATACTATT TCAAAATGCA AGAACAAAGT AAGTGCATT
2761 TCATTGATGT TTGTGTATGT AGATGACATT AGTATTTTAC CCAAAATAC TGATATTAAA
2821 ATTCCAGTA AGATTCTAG GTAATGGTA AACGTGTAAA TAGTTGGGCG TACAACCTTC
2881 TACACCTGTG TGGCTCAGTG TACAGTTACC TATATTTAAT ATTACAATTA TATCATTAAT
2941 AACGAATGAT AAGATTTTAT TAACATTAAT TTCTCTGTCT GAACGTATCA CTGTAATAT
3001 TACTAATGT TTCTAATTA CATTATTCAT ACATATATTA TCATCCCTTG AGCTATAGTT
3061 CCAAGTATT CCAAAACCA AATGAAATA AATTTCAAT TTACTTCAGC ATCAGCAAT
3121 TGTGAAAAC TGGTGTCTCT GAATTCATTT AACAAATAGT TTTTACTTTG AATCCATGGC
3181 TCAGGAGACA TCGTAAGGAT ATTCATTGAA ATCTATTTAG AATCTGCTGT ATGTATCATG
3241 ACACCTTCAA ATAAATATC ACTAATGCTG TGTTCGGCTA TTAGATACAA TAACTCGTAC
3301 ATATTAACGT AAGCAGATTC GTTTTATTA TCGGCGCGAG AGAACGCATC TGTTTCTATA
3361 ACGAAAGGT GCGCATATC GGTATATCA TCTTCTTGG TCTGTATAAA AATAAGACTC
3421 AAAGACTCGG GGGAAACCCG TATATGTATA CTATCATAAC CGTTATCCTT ATTTTGACAA
3481 AGCTCTGGGA AACGAATAG CATTTTGTAT CAATACACA ATTCTTGCTC ATTTTCTCT
3541 TCGCGCTTTT ATTTGAATTT AGCTGTGCG CACTGTGCGC AATACTCTAA TGGCTTAGAA
3601 TTATCCTTAA TATATATTCT CCGGCTGTGA CGAGGTGTAG CATCTGCATT ATTATATPAA
3661 TGTCAATTCG TTTGGCATTC GTTGATGTA AGGAATATTT AGCCTATGTC CAACGCTCAA
3721 AATCTCATAG ACGTATTAGG CACACATAAG TGTACCTTTT CGTATGTATG TAAATTAATG

~~3781 GAGACTCAAT GTCTTAGTTG GTGCTATATA TACTACGATC CGAGGAGAA GTACCCAGTA~~
~~3841 GTTTACTCAT ACATAACGCC ACTGATATCT TGTGGAGGAA ATATTATCTG CGAGACAAGT~~
~~3901 AGACATTAGT TAAGTTTACA TATTTACAAT AAATGTTTCC ATTATTAGCA TATAACATAT~~
~~3961 GAATGTGTTA CTGTTGAAAG CAGCTTCTCA AGGTACCACC AGTAATTCCG AGATACTTGT~~
~~4021 AGGATTTGCA TTGGATAAAC AACTTATACT AAAACGAGA TTGACTGAA TCTAAACCGC~~
~~4081 AAATACTGTG GTCAAAATTA TTAACACTT TCAATACATG TTGTAGGCAT GTTTCTGTAA~~
~~4141 TTTCACTTT AATTGTAAAG TCAATTAAAT CACTGTATAA TAATACATTT TCAACATATC~~
~~4201 TCTCACTGTT AAGATTTCCG TTGGTCCAAC GACAGANTCA AATCCGACG TAATGATGAT~~
~~4261 CCGGGCAAAA CTAACAATA GATAGATCTC TTAATGATT ACGTTCAAGT GGAAGAGGTG~~
~~4321 ATGTATGAAG GAAGGTAGCA TTAAGTAACA CTGTATAATA TATTGACCAT AATTACGATT~~
~~4381 TTAGAACTCA TAATGGACGG TTTACCTCTT AAGATTATAC AGTAAAGCTA GATAGTTTCA~~
~~4441 TTGGTAAGCT ATGTTGTACT CGATTGGTAT GACATAACTA ATGACTGAGC TTTGTCATCT~~
~~4501 ACTACAACCC GAGGGCGAAT ACCTCCTTCT TCTACCATTC CCATTTAATT ATAAAGAAAC~~
~~4561 ATTGTAAGAA ATGATTTAAT AAAATATCCC AAATATCTTA AAACAAAAA AAAAAAAA~~
~~4621 A"~~

Please insert the attached figures, labeled Figures 2 through 4, after Figure 1.